WORKPLACE GROUP
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July 13, 2007

Mr. Gregg J. Borri, Esquire
Gregg J. Borri Law Offices
61 Broadway, Suite 2125
New York, NY 10006

Re: James Director v Georgia-Pacific

Dear Mr. Borri:

This letter is in response to your request to review certain documents and provide opinions from the standpoint of an industrial hygienist in the referenced matter. It will serve as my report.

My qualifications as an industrial hygienist are summarized on the attached curriculum vitae. I have worked as an industrial hygienist since 1967. My educational background includes a Ph.D. in Environmental Health Engineering from Northwestern University in 1975. The American Board of Industrial Hygiene certified me in the comprehensive practice of industrial hygiene in 1978. I am a member and Past President of the American Academy of Industrial Hygiene, a Fellow member and former officer of the American Industrial Hygiene Association, a former director and officer of the American Board of Industrial Hygiene, a Professional member of the American Society of Safety Engineers, and a former Trustee of the American Industrial Hygiene Foundation.

I reviewed the case-specific materials you provided. These included:

1. Transcripts of four discovery depositions of James Director taken December 13, 2006, December 14, 2006, December 15, 2006, and December 18, 2006;
2. The transcript of a videotaped deposition of James Director taken February 6, 2007;
3. The transcript of a deposition of Jerry Rodney Saindon taken in the case of Sara Rogers versus Weyerhaeuser Company, Portage County, Wisconsin taken April 3, 2003;
4. The transcript of a deposition of Larry Grzemkowski in the case of Lawrence Addison versus AC&S, Inc., Baltimore City taken on May 25, 2004; and
5. Patent documents regarding the manufacture of fire doors by Weyerhaeuser, U. S. Plywood, and Champion.

From reviewing these documents I understand that Mr. Director was diagnosed with pleural mesothelioma around September 2006. Through his attorneys Mr. Director claims his disease was caused by excessive exposure to respirable asbestos. The purpose of my review was to assess Mr. Director's asbestos exposure in light of the asbestos-related disease being claimed with particular attention to exposures potentially attributable to Georgia-Pacific products.

Brief Background

Mr. Director was born in April 1954. Beginning at age 13 to 15 (1967 to 1969) but more consistently while attending high school (1970 through 1972), Mr. Director worked Saturdays and summers at his adoptive father's business, Director Door Corporation. He graduated from high school in 1972. While attending college Mr. Director continued to work Saturdays (except perhaps the first year while he attended George Washington University) and summers at his father's business. After leaving college in late 1975 Mr. Director began working full time for Director Door Corporation. He worked for the company until it dissolved in 2002 after which he worked for a company called Director Door Industries started by his wife.

Asbestos Exposure Claimed

Director Door Corporation supplied and modified frames, metal doors, wood doors, and hardware for commercial, industrial, and some residential building in the New York City area. Mr. Director claims to have been exposed to airborne asbestos while working at Director Door Corporation in various ways:

1. Shop work where fire doors with asbestos-containing cores were cut to size, drilled and routed for hardware, and openings were made for windows;
2. Field installations where similar modifications were made to fire doors with asbestos-containing cores;
3. Working adjacent to drywall finishers using asbestos-containing joint compound during field installations; and
4. Applying asbestos and metal sheets to make wooden doors acceptably fireproof during residential construction.

Asbestos and Mesothelioma

In assessing the risk of asbestos-related mesothelioma the four most important factors to consider are fiber type, exposure dose, fiber dimensions (i.e., length and diameter), and latency (i.e., duration since exposure and residence time). These factors can be used to apportion risk among asbestos exposure sources.[1]

[1] Price, B. and A. Ware: Mesothelioma: Risk Apportionment Among Asbestos Exposure Sources. *Risk Analysis 25(4)*: 937-943 (2005).

Fiber Type

In one review the exposure specific risk of mesothelioma from the three principal commercial fiber types of asbestos is estimated to be broadly in the ratio of 1:100:500 for chrysotile, amosite, and crocidolite respectively.[2] In another the potency of amphiboles is estimated to be 750 times that of chrysotile and the possibility that pure chrysotile is non-potent for causing mesothelioma could not be excluded.[3] The relative potency of each asbestos fiber type for mesothelioma seems to be related to durability or biopersistence of the fiber in the respiratory system. In animal studies the half-life of chrysotile is a matter of days or weeks while that for amphiboles is months or years.[4] The potency of tremolite appears to be on the same order as that of other amphiboles. Cases of mesothelioma in individuals exposed only to chrysotile are rare.[5] Mesothelioma cases originally thought to be associated with chrysotile exposure have been attributed to prior amphibole exposure or to contamination of chrysotile with tremolite.

Exposure Dose

Exposure dose is the product of exposure intensity and exposure duration. Cumulative exposure dose is the sum of doses for all activities involving asbestos exposure. A dose-response-relationship has been reported for mesothelioma caused by asbestos.[6] The lowest cumulative asbestos exposure doses that have been associated with mesothelioma in epidemiological studies are on the order of 0.5 to 5 fib•yr/cc.[1,7,8,9] Anecdotal and epidemiological evidence suggests that this range is applicable to amphibole asbestos – amosite, crocidolite, and tremolite – but not to chrysotile. For chrysotile cumulative exposure doses of 10 to 25 fib•yr/cc or more are necessary before there is a risk of mesothelioma[10] with short fibers requiring high exposure doses than long fibers.

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[2] Hodgson, J. T. and A. Darnton: The Quantitative Risk of Mesothelioma and Lung Cancer in Relation to Asbestos Exposure. *Ann Occup Hyg 44(8)*: 565-601 (2000).
[3] Berman, D. W. and K. S. Crump: Technical Support Document for a Protocol to Assess Asbestos-Related Risk. Final draft prepared for Office of Solid Waste and Emergency Response, U. S. Environmental Protection Agency, Washington, D.C. (October 2003).
[4] Bernstein, D. M., J. Chevalier, and P. Smith: Comparison of Calidria Chrysotile Asbestos to Pure Tremolite: Final Results of the Inhalation Biopersistence and Histopathology Examination Following Short-Term Exposure. *Inhalation Toxicol 17*: 427-449 (2005).
[5] McDonald, A. D., *et al.*: Mesothelioma in Quebec Chrysotile Miners and Millers: Epidemiology and Aetiology. *Ann Occup Hyg 41*: 707-719 (1997).
[6] Iwatsubo, Y. *et al.*: Pleural Mesothelioma: Dose-Response Relation at Low Levels of Asbestos Exposure in a French Population-Based Case-Control Study. *Am J Epidemiol 148(2)*: 133-142 (1998).
[7] Hansen, J., N. H. de Klerk, A. W. Musk and M. S. T. Hobbs: Environmental Exposure to Crocidolite and Mesothelioma: Exposure-Response Relationships. *Am J Respir Crit Care Med 157*: 69-75 (1998).
[8] Ilgren, E. B. and K. Browne: Asbestos-Related Mesothelioma: Evidence for a Threshold in Animals and Humans. *Regul Toxicol Pharmacol 13*: 116-132 (1991).
[9] ATSDR: *Toxicological Profile for Asbestos*. Agency for Toxic Substances and Disease Registry, Public Health Service, US Department of Health and Human Services, Atlanta, GA (September 2001).
[10] Churg, A.: Chrysotile, Tremolite, and Malignant Mesothelioma in Man. *Chest 93(3)*: 621-628 (1988). See also Chapter 10 In Churg, A. and F.H.Y. Green: *Pathology of Occupational Lung Disease*. 2nd Edition. Williams & Wilkins, Baltimore (1998).

Fiber Dimensions

Respirability of asbestos fibers depends upon their aerodynamic behavior, which in turn depends primarily upon their diameter and to a lesser extent upon their length. Fibers greater than 3 µm in diameter are filtered out in the upper respiratory system and do not penetrate deeply into the lungs. Fibers shorter than 5 µm in length that penetrate into the lungs can be engulfed and removed by macrophage cells. An expert panel convened by the Agency for Toxic Substances and Disease Registry to consider the influence of fiber length concluded that asbestos fibers "shorter than 5 µm are unlikely to cause cancer in humans."[11] An asbestos risk assessment model suggested to the Environmental Protection Agency predicts that "fibers between 5 and 10 µm are non potent in causing mesothelioma."[12] Thus, long thin fibers present the greatest risk of mesothelioma.

Latency and Residence Time

The period from first exposure to asbestos and diagnosis of malignant mesothelioma – the latency period – is never less than ten years, rarely less than fifteen years, and a median of 32 years.[13] The currently accepted risk assessment model for mesothelioma suggests that earlier exposures to airborne asbestos contribute exponentially more to the absolute risk of developing mesothelioma than do later exposures.[14]

Assessment of Exposure and Risk

As noted above amphibole asbestos is far more potent than chrysotile in terms of mesothelioma risk. Therefore, in assessing Mr. Director's asbestos exposure and mesothelioma risk it is important to determine if he was potentially exposed to significant dose of amphibole asbestos. In my opinion he was.

Mr. Director testified extensively about dust emissions while cutting, drilling, and routing fire doors. He did such work in the shop at Director Door Corporation and was present when others did so from the time he began working there in 1967 to 1969 until he began working more extensively in the office in 1976. He also modified fire doors and installed hardware during field installations beginning in the summers when he was in high school (1970 to 1972) and continuing through 1975. Mr. Director testified that the

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[11] Eastern Research Group, Inc.: Report on Expert Panel on Health Effects of Asbestos and Synthetic Vitreous Fibers: The influence of Fiber Length. Prepared for the Agency for Toxic Substances and Disease Registry, Atlanta, GA (March 17, 2003).
[12] Berman, D.W. and K.S. Crump. Final Draft: Technical Support Document for a Protocol to Assess Asbestos-Related Risk. Prepared for Office of Solid Waste and emergency Response, U. S. Environmental Protection Agency, Washington, D.C. (October 2003)
[13] Lamphear, B.P. and C.R. Buncher: Latent Period for Malignant Mesothelioma of Occupational Origin. *J Occup Med 34(7)*: 718-721 (1992).
[14] Peto, J., *et al.*: Relationship of Mortality to Measures of Environmental Asbestos Pollution in an Asbestos Textile Factory. *Ann Occup Hyg 29*: 305-355 (1985). See also *Asbestos in Public and Commercial Buildings: A Literature Review and Synthesis of Current Knowledge.* Health Effects Institute – Asbestos Research, Cambridge, MA (1991) pp. 6-15 thru 6-16.

manufacturers of fire doors handled at Director Door Corporation were Weyerhaeuser, U. S. Plywood, and Algoma. Patent documents and the testimony of Mr. Saindon confirm that fire doors from Weyerhaeuser likely contained Kaylo calcium silicate block as a core material. Amosite along with chrysotile was used to manufacture Kaylo. Patent documents and the testimony of Mr. Grzemkowski show that other fire door manufacturers used amosite-containing products for fire door cores. In addition, some patent documents and testimony confirm the use of Marinite to construct fire doors. Marinite is the trade name for a Johns Manville product that contained a relatively high percentage of amosite. To the extent that Mr. Director created airborne dust by cutting, drilling, or routing the cores of fire doors as he described both in the shop and field, more likely than not he was exposed to amosite asbestos and the exposure intensity was high. Since only a small exposure dose of amosite can present a risk of asbestos-related mesothelioma, it is my opinion that Mr. Director's risk of the disease is fully explained by his work with fire doors.

Assessment of Exposure Potentially Attributable to Georgia-Pacific Products

With respect to Georgia-Pacific the claim in this case is that Mr. Director was exposed to airborne asbestos while using the asbestos sheets he described to construct fire doors for residential buildings and by being in the vicinity when Georgia-Pacific joint compound was used in buildings to finish walls made of gypsum board. I will address each of these separately.

Sheet Material

Although Mr. Director was emphatic that the rolled sheet material he used to construct residential fire doors contained asbestos and was supplied by Georgia-Pacific, I am aware of no asbestos-containing product manufactured and sold by Georgia-Pacific that meets his description. More specific information that confirms the material as being from Georgia-Pacific and containing asbestos is necessary before risk attribution can be made.

Drywall Joint Compound

In his testimony regarding drywall joint compounds Mr. Director identified products from three manufacturers – U. S. Gypsum, Kaiser Gypsum, and Georgia-Pacific – as being used on some of the jobs where he helped install fire doors. Mr. Director could not recall which brand he saw most frequently. He described the Georgia-Pacific material as being both dry mix and pre-mix. Mr. Director did not personally use joint compounds. His testimony was that he was in the immediate vicinity when joint compounds were used. It is clear from Mr. Director's testimony that joint compounds were not used on every project where he helped install fire doors. For example, on projects where the wall construction was masonry joint compounds were not used. Likewise, when existing doors were replaced with new fire doors, the use of joint compound was not necessary in every case.

To estimate Mr. Director's asbestos exposure dose potentially attributable to drywall joint compound I considered the following factors:

1. Mr. Director participated in field installations of fire doors during three months each summer from 1969 through 1975. [Note: Mr. Director worked mostly in the shop prior to high school and did not testify that any field installations were done on Saturdays.]
2. He worked on fire door installation projects where joint compound was being used an average of one-half time or 20 hours per week. [The balance of his work time would be spent in the shop and on fire door installation projects where drywall finishing was not done.]
3. Since he did not personally do drywall finishing and was some distance away from such work at times, Mr. Director's average asbestos exposure intensity was 10 to 50 percent that experienced by the drywall finishers.
4. The time-weighted average asbestos exposure of drywall finishers was 2.1 to 4.5 fib/cc for pre-mix and dry mix respectively as estimated by Verma and Middleton.[15]

Based on these factors I estimate Mr. Director's asbestos exposure dose potentially attributable to drywall joint compound to be on the order of 0.2 to 1.7 fib-yr/cc. Mr. Director's actual exposure dose, if any, from drywall joint compound was probably on the low end of this range because the airborne concentration of dust decreases exponentially with distance from the source. The portion of his exposure dose attributable to Georgia-Pacific products would be a fraction of this estimate.

The only type of asbestos used in drywall joint compound was short fiber chrysotile. As noted above, some authorities believe that short fibers – those less than 5 to 10 μm in length – do not contribute to cancer, including mesothelioma, in humans. Even at the high end of the estimated exposure range, Mr. Director was not exposed to a sufficient chrysotile dose to be at risk for asbestos-related mesothelioma.

Conclusions

Based on the considerations described above, it is my opinion to a reasonable degree of scientific certainty that:

1. In terms of mesothelioma risk Mr. Director's most significant asbestos exposure would have been from amphiboles that he potentially encountered while cutting, drilling, and routing fire doors with cores that contained amosite;
2. More likely than not, Mr. Director's amosite exposure from work with fire doors fully explains his risk of asbestos-related mesothelioma; and

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[15] Verma, D. K. and C. G. Middleton: Occupational Exposure to Asbestos in the Drywall Taping Process. *Amer Ind Hyg Assoc J 41(1)*: 264-269 (1980).

3. There is no indication that Mr. Director was exposed to a sufficient chrysotile dose from Georgia-Pacific drywall joint compound to place him at risk for asbestos-related mesothelioma.

Please let me know if you have questions.

Very truly yours,

William L. Dyson

William L. Dyson, PhD, CIH

CURRICULUM VITAE

WILLIAM L. DYSON, PhD, CIH

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EDUCATION:

B.S., Chemical Engineering, North Carolina State University, Raleigh, North Carolina, 1966.

M.S., Environmental Health Engineering, Northwestern University, Evanston, Illinois, 1971. Thesis title: *Reduction of Toluene Diisocyanate in Air by Water Vapor*

Ph.D., Environmental Health Engineering, Northwestern University, Evanston, Illinois, 1975. Dissertation title: *The Reaction of Sulfur Dioxide with Zinc Oxide Fume in Air*

Miscellaneous: Graduate work in chemical engineering, North Carolina State University, 1966; Ten week industrial hygiene training course, U.S. Public Health Service, 1967; Business courses, University of Cincinnati, 1967. Numerous short courses and seminars - toxicology, ventilation, asbestos, formaldehyde, indoor air quality, management, and other topics - 1973 to present.

PROFESSIONAL EXPERIENCE:

2001 to Present — Workplace Environments, LLC, Greensboro, North Carolina
Consultant in Industrial Hygiene

1998 to 2001 — Workplace Hygiene, LLC, Greensboro, North Carolina
Consultant in Industrial Hygiene

1991 to 1998	Health & Hygiene, Inc. Greensboro, North Carolina *President*
1982 to 1991	Health & Hygiene, Inc. Greensboro, North Carolina *Vice President/Industrial Hygiene*
1976 to 1982	Burlington Industries, Greensboro, North Carolina *Corporate Industrial Hygienist*
1973 to 1976	IBM, Lexington, Kentucky *Manager, Industrial Hygiene*
1967 to 1969	U.S. Public Health Service, Cincinnati, Ohio *Industrial Hygiene Engineer*
1967	Monsanto Company, Luling, Louisiana *Technical Assistance Engineer*
Summer 1966	E.I. DuPont de Nemours, Belle, West Virginia *Engineer Intern*
Summers 1964 & 1965	Union Carbide, Institute, West Virginia *Operator and Engineer Intern*

ACADEMIC EXPERIENCE:

1979	North Carolina A & T State University, Greensboro, North Carolina *Adjunct Assistant Professor*
1971 to 1976	Northwestern University, Evanston, Illinois *Teaching assistant*
1970	Northwestern University, Evanston, Illinois

Laboratory teaching assistant

1966 North Carolina State University, Raleigh, North Carolina
Laboratory teaching assistant

CERTIFICATION: Certified by the American Board of Industrial Hygiene in the Comprehensive Practice of Industrial Hygiene (1978). Certification No. 1457

AFFILIATIONS:
American Industrial Hygiene Association –Fellow Member
American Academy of Industrial Hygiene – Member
American Board of Industrial Hygiene – Diplomate
Carolinas Section AIHA – Member
American Society of Safety Engineers – Professional Member
Sigma Xi

PROFESSIONAL ACTIVITIES:
American Industrial Hygiene Association
- Air Pollution Technical Committee 1975-1979
- Conference Program Committee 1979, 1982-1986
- Treasurer-Elect 1995 - 1996
- Treasurer 1996 – 1998
- Finance Committee 1995 - 2002

American Academy of Industrial Hygiene
- Secretary-Treasurer 1980-1983
- Vice-President 1983-1984
- President-Elect 1984-1985
- President 1985-1986
- Past-President 1986-1987

American Board of Industrial Hygiene
- Director 1989-1995
- Treasurer 1991-1995

American Industrial Hygiene Foundation
- Trustee 2002-2005

American Textile Manufacturers Institute
- Chemical Substances Subcommittee 1976-1982
- Dye Task Group 1981

N.C. Triad Association of Occupational Health Nurses
- Advisory Board 1978-1983

Numerous talks and lectures;

American Industrial Hygiene Conference and Exposition
North Carolina Statewide Safety Conference
Professional Conference on Industrial Hygiene
American Furniture Manufacturers Association
American Association of Textile Colorists and Chemists
Carolinas Section AIHA

PAPERS AND PUBLICATIONS:

Heath, George A. and William Dyson: Handling Powder Dyes: Workplace Exposure, *Textile Chemist and Colorist*, Vol. 22, No. 4, pgs. 25-31, April 1990.

Dyson, William L.: *Guidelines for Safe Handling of Dyes*, ETAD, pgs. 1-15, November 1989.

Powell, Charles H, Duncan A. Holady, Mildred A. Kendrick, and William L. Dyson, The Preliminary Survey: A Technique for the Assessment of the Nation's Occupational Health Requirements, Transactions of the 30th Annual Meeting of the ACGIH, pgs. 60-72, 1968.

McCarl, G.W., R. E. Reifschneider and W. L. Dyson: *Study of an Episode of Illness at Lasko Metal Products Company*, Franklin, Tennessee, Bureau of Occupational Safety and Health, Division of Occupational Injury and Disease Control, May 1969.

Dyson, William, and G. Warren McCarl: *Vehicle Exhaust Exposure at El Paso and Laredo, Texas, Border Crossing Stations*, U.S. Department of Health, Education, and Welfare, Public Health Service, Consumer Protection and Environmental Health Service, Environmental Control Administration, TR-58, November 1968.

Dyson, William and Edward R. Hermann: Reduction of Atmospheric Toluene Diisocyanate by Water Vapor, *American Industrial Hygiene Association Journal*, Vol. 32, Number 11, November 1971.

Imbus, Harold R., Ralph Buncher, William L. Dyson, John A. Thomas, and G.Z. Nothstein: Health Professionals as Experts, *Toxic Torts, Litigation of Hazardous Substance Cases, Trial Practice Series*, pgs. 542-584.

Dyson, William L. and James E. Quon: Reactivity of Zinc Oxide Fume with Sulfur Dioxide in Air, *Environmental Science & Toxicology*, Vol. 10, No. 5, pgs. 476-481, May 1976.

Imbus, Harold R., and William L. Dyson: A Review of Nasal Cancer in Furniture Manufacturing and Woodworking in North Carolina, the United States, and Other Countries, *Journal of Occupational Medicine*, Vol. 29, No. 9, pgs. 734-740, September 1987.

Rose, Vernon E, and William L. Dyson: Occupational Health Survey

of the Chicago Metropolitan Area, U.S. Department of Health, Education and Welfare, Bureau of Occupational Safety and Health, October 1969.

EXHIBIT H

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Attorneys for Defendants The Goodyear Tire & Rubber Company and Goodyear Canada Inc.

SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF NEW YORK

IN RE: NEW YORK CITY ASBESTOS LITIGATION	NYCAL
KARL H. FELTEN and ELLEN FELTEN, Plaintiffs, -against- A.W. CHESTERTON COMPANY, et al., Defendants.	Index No. 114005/06 **THE GOODYEAR TIRE & RUBBER COMPANY'S AND GOODYEAR CANADA INC.'S EXPERT WITNESS LIST** Hon. Helen E. Freedman IAS Part 39

Defendants The Goodyear Tire & Rubber Company and Goodyear Canada Inc. (together "Goodyear"), by their attorneys, Lynch Daskal Emery LLP, hereby provide the following expert disclosure and designate the following expert witnesses who may be called to testify at trial.

1. John W. Spencer, C.I.H.

Mr. Spencer is a Certified Industrial Hygienist, Certified Safety Professional, and Licensed Environmental Sanitarian. Mr. Spencer's curriculum vitae has been previously produced to the plaintiff's attorneys. Mr. Spencer will testify that asbestos gasket materials are non-friable forms of asbestos-containing products and that they are encapsulated products, which, by design, bind asbestos fibers into a rubber or elastomer material, thus significantly reducing the release of fibers.

Mr. Spencer will also testify that the literature and his own exposure assessments of sheet gasket material have clearly shown that there is an extremely low or non-detectable asbestos fiber release when Durabla or other gasket materials are cut, installed, and removed. Mr. Spencer's report regarding his studies has been previously produced to the plaintiff's attorneys. Mr. Spencer will testify about the scientific methodologies used and will testify that the evaluations were designed to evaluate the actual contributions of asbestos fibers from the fabrication and installation of asbestos-containing gaskets. Mr. Spencer will also testify about governmental regulations affecting asbestos-containing gasket materials and other asbestos-containing products.

He will also testify about the proper methodology for occupational air sampling and microscopy and respond to and critique the studies of plaintiff's experts.

Mr. Spencer will testify that the resulting airborne asbestos concentrations from the use of Durabla or other gasket products would have been well below even present occupational exposure limits, if detectable at all.

Mr. Spencer will testify that the gasket materials to which plaintiff claims exposure were manufactured with chrysotile asbestos. Mr. Spencer will offer his opinion that working with or near asbestos-containing gasket materials presents no significant health risk from the associated asbestos-containing materials and that the concentration of asbestos fibers to a worker from asbestos-containing gasket materials is so insignificant that the cumulative fiber dose would not be discernable from the ambient exposures that the general population incurs.

Mr. Spencer's opinions are based on his education, training, a comprehensive review of the literature, the studies he has conducted, and his several decades of experience as an industrial hygienist and safety professional. His opinions are also based on the records disclosed in this case.

2. J. Leroy Balzer, Ph.D.

Dr. Balzer holds his Ph.D. in Environmental Health Sciences and is a consultant in industrial hygiene and occupational and environmental health and safety. Dr. Balzer will testify about the studies he conducted with John W. Spencer in September of 1997 and June of 1998 to measure airborne asbestos fiber concentrations during the fabrication of gaskets from the Durabla sheet material. See Spencer expert disclosure description. Dr. Balzer's report regarding the studies he did with Mr. Spencer has been previously produced to the plaintiff's attorneys.

3. Frederick W. Boelter, C.I.H., P.E.

If plaintiff presents any evidence of actual exposure to Goodyear or Durabla asbestos gasket material, this witness will testify about the level of respirable asbestos fiber caused by the gasket material and particular use (if any), about the risk associated with such level (if any), and about how that level compares with background environmental levels, regulatory levels, and the levels of exposure from other products to which plaintiff was exposed and the risks associated with those levels. He will testify about the requirements of standard and accepted occupational exposure methodologies, governmental regulations regarding asbestos, and ACGIH threshold limit values. He will testify about the understanding of the scientific community and in the industry of these levels at various points in history. He will testify about different asbestos fiber types and the risks associated with each. He will testify about the historical uses of Goodyear and Durabla gasket material and other companies' products, and how they are manufactured. He will discuss and opine about re-entrainment and fiber drift. He will describe the role of industrial hygienists in assessing risk, and will discuss current and historical sampling and testing methodologies and technologies. He is prepared to discuss settled dust and tindall lighting methods, exposure reconstruction, and work simulation studies.

4. **Arthur Langer, Ph.D. and R.P. Nolan**

If plaintiff presents any evidence of actual exposure to Goodyear asbestos gasket material, these witnesses may testify about the level of respirable asbestos fiber associated with the gasket material and particular use.

5. **Morton Corn, Ph.D., C.S.P.**

Dr. Corn will testify about causation, exposure, industrial hygiene, and will discuss properties of asbestos fibers and behavior of airborne asbestos fibers.

6. **Howard E. Ayer**

Dr. Ayer will testify about industrial hygiene, state of the art, and exposures.

7. **Victor L. Roggli, M.D.**

Dr. Roggli will testify about causation and exposure. In particular, he will testify that exposure to respirable asbestos from gaskets in normal use is insufficient to constitute a substantial factor in causing asbestos-related disease, and that the exposures to Goodyear gaskets described by plaintiff and/or his co-workers were insufficient to constitute a substantial factor in causing plaintiff's claimed disease. He will also explain that chrysotile asbestos is not as pathogenic as amphibole asbestos with regard to mesothelioma.

8. **Michael Graham, M.D.**

This witness will testify about causation and exposure. In particular, he will testify that exposure to respirable asbestos from gaskets in normal use is insufficient to constitute a substantial factor in causing asbestos-related disease, and that the exposures to Goodyear gaskets described by plaintiff and/or his co-workers were insufficient to constitute a substantial factor in causing plaintiff's claimed disease. He will also explain that chrysotile asbestos is not as pathogenic as amphibole asbestos with regard to mesothelioma.

9. **James D. Crapo, M.D.**

This witness will testify about causation and exposure. In particular, he will testify that exposure to respirable asbestos from gaskets in normal use is insufficient to constitute a substantial factor in causing asbestos-related-disease, and that the exposures to Goodyear gaskets described by plaintiff and/or his co-workers were insufficient to constitute a substantial factor in causing plaintiff's claimed disease. He will also explain that chrysotile asbestos is not as pathogenic as amphibole asbestos with regard to mesothelioma.

10. I. Allan Feingold, M.D.

Dr. Feingold is the Chief of Pulmonary Medicine at South Miami Hospital, Miami, Florida. Dr. Feingold's curriculum vitae has been previously produced to the plaintiff's attorneys. Dr. Feingold will testify to a reasonable degree of medical certainty that work with asbestos gaskets results in minimal chrysotile asbestos exposure and that such low-dose chrysotile exposure cannot cause or contribute to the development of mesothelioma, lung cancer or asbestosis. Dr. Feingold will testify that any such exposure to the gasket material was not a substantial contributing factor in the development of the plaintiff's claimed disease.

11. Benjamin H. Safirstein, M.D.

Dr. Safirstein is an Associate Clinical Professor of Medicine at Mt. Sinai School of Medicine in New York, New York. Dr. Safirstein will testify to a reasonable degree of medical certainty that work with asbestos gaskets results in minimal chrysotile asbestos exposure and that such low dose, chrysotile exposure cannot cause or contribute to the development of mesothelioma, lung cancer or asbestosis. Dr. Safirstein will testify that any such exposure to the gasket material was not a substantial contributing factor in the development of plaintiff's claimed disease. He will also testify with regard to the actual contributing factors to plaintiff's claimed disease.

12. Roger Maxfield, M.D.

Dr. Maxfield is an Associate Clinical Professor of Medicine in the Division of Pulmonary, Allergy, and Critical Care Medicine at the College of Physicians & Surgeons of Columbia University. He is an Associate Attending Physician on the Medical Service and Medical Director of the Chest Clinic at the New York Presbyterian Hospital, Columbia Presbyterian Center. Dr. Maxfield will testify to a reasonable degree of medical certainty that work with asbestos gaskets results in minimal chrysotile asbestos exposure and that such low dose, chrysotile exposure cannot cause or contribute to the development of mesothelioma, lung cancer or asbestosis. Dr. Maxfield will testify that any such exposure to the gasket material was not a substantial contributing factor in the development of plaintiff's claimed disease. He will also testify with regard to the actual contributing factors to plaintiff's claimed disease.

13. Thomas F. McCaffery

Thomas F. McCaffery is a Merchant Marine officer, licensed by the United States Coast Guard as Chief Mate of Oceans Steam or Motor Vessels, any Gross Tons upon Oceans. He is a graduate of the United States Naval War College.

Mr. McCaffery may testify about the use of asbestos-containing materials on board marine vessels. His testimony may involve the types of products and equipment used throughout ships that contain asbestos and/or involve the use of asbestos in their repair and maintenance. He may also testify about the ways and manner in which crews aboard ships work with products and equipment that contain asbestos.

RESERVATION OF RIGHTS

The undersigned defendants reserve the right:

1. To call any treating physicians, attending physicians, screening or consulting physicians and any other health care provider who has treated or examined the plaintiff or evaluated any health condition of the plaintiff;

2. To amend and/or supplement this Expert Witness List in as much as discovery and Goodyear's investigation in this matter is incomplete;

3. To amend and/or supplement this Expert Witness List or serve expert reports upon receipt of proper CPLR § 3101(d) disclosures from plaintiff and upon the proof presented at trial; and

4. To call witnesses or rely on testimony by witnesses of other parties in this action or appearing on the Expert Witness Lists of other parties to this action.

Dated: New York, New York
April 27, 2007

Respectfully submitted,

LYNCH DASKAL EMERY LLP
Attorneys for Defendants The Goodyear Tire & Rubber Company and Goodyear Canada Inc.

By: _____
Scott A. Harford
264 West 40th Street
New York, New York 10018
(212) 302-2400

TO: All Counsel (see attached service list)

SOMA
A Healthier World. A Safer Workplace.

August 1, 2007

Dan McNamara
DeCicco, Gibbons & McNamara, P.C.
14 East 38th Street – 5th Floor
New York, NY - 10016

RE: Harvey Helfand v. Kaiser Gypsum.

Dear Mr. McNamara:

I have been asked to review materials for the above referenced case and to provide an expert opinion regarding Mr. Harvey Helfand's alleged exposures to asbestos from using joint compound (referred to as a plaster product by the plaintiff) possibly manufactured by Kaiser Gypsum during his personal renovation work primarily at residential sites and on one occasion a factory. Claims have been made that his exposure to asbestos from the joint compound allegedly manufactured by Kaiser Gypsum caused or contributed to his diagnosis of mesothelioma. The materials that I have reviewed include the following:

- Plaintiff's Reponses to Defendant's Fourth Amended Standard Set of Interrogatories and Request for Production of Documents; and,
- Deposition Transcripts of Harvey Helfand, dated January 22, 2007, January 29, 2007 and May 11, 2007.

DESCRIPTION OF EVENTS

Mr. Harvey Helfand was born on November 8, 1935 in Brooklyn, NY. He attended East NY Vocational High School from about 1949 to 1951. The plaintiff believed that he may have been exposed to asbestos when he was in the automotive shop and performed brake work at this school. He then attended NY School of Printing and graduated in 1953. He was a member of Local 51, Printer's Union from approximately 1955 to 1960 and a member of Local 1, Amalgamated Lithographers Union from 1959 to 1965. Mr. Helfand did not serve in the military.

In about 1950 or 1951, he worked about 4-5 hours on the weekdays and full-time on holidays, and in the summer time for a year, at Rabin Typographers as a clean up boy. His job tasks included picking up lead and the type, cleaning the type with graphite, cleaning the Linotype machines and cleaning the work area. He claimed that when he cleaned the lead pots

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(pots that melt lead) in the machines, he was exposed to the asbestos lining in the pots. He described the lining as a paste that hardened upon application. It was applied with a spatula by others, to the outside on the case that held the crucible. He also stated that he, at times, used a powder to clean the pot. He cleaned them everyday and it was changed occasionally by others. He also stated that he handled the lead in the pot. He further added that he had to clean the residue on the machine and believed that it contained asbestos. He described that he cleaned with a rag and wiped it down and cleaned the keyboards. He was not sure if he was exposed to asbestos from the pipes in the shop.

He worked after school hours and in the summer of 1951 and 1952, as a mail clerk at Doughnut Corporation of America. He collected and delivered mail, was in-charge of the postage machine and mailed out packages at the end of the day. He did not claim asbestos exposure at this site.

From 1953 until 1963 and 1967 until 2006, Mr. Helfand worked for various printing operations including United Offset Company, Ramapo Litho Corporation, Muree Press, Service Offset, Ross Printing, Triple M, H&H Multicolor and Spectrum Printing where his job title ranged from errand boy to helper to pressman to foreman to business owner. He was not aware of asbestos exposure at these sites. He did not use a mask or respirator during his employment at the above job sites.

He stated that he started performing home improvements in about 1950 and the last time he performed such a task was in about 2006. He did this work on a full-time basis for about 2 years continuously (prior to 1967) and for about a year in about 1992 or 1993. His work mostly involved basement and kitchen renovations, painting and demolition work. The projects were remodeling work where he "ripped out" the old construction and modernized it. Finishing a basement usually involved refurbishing rooms; plastering the cracks in the walls, installing drywall, electric wiring, plumbing and adding a bathroom. His job sites consisted mostly of residential locations, primarily private single-family homes, and some work in a factory. He recalled performing insulation work and stated that he used batting when he insulated and rarely blew in any insulation. No specifics about non-personal home improvement projects were provided in the testimony. He claimed that he was exposed to asbestos from working with or around the following products:

- Pipe covering: If he re-did a job, he had to remove the pipe "wraps" that he believed contained asbestos;
- Boiler "wrap": He stated that he ripped coverings on boilers he had to remove the boiler;
- Walls: He claimed to be exposed to asbestos while installing sheetrock walls, from the sheetrock cement or spackle. He specifically mentioned using US Gypsum products though he also mentions Weyerhaeuser products, and in conjunction with work on ceilings (see next section) he mentions Kaiser.

- Ceilings: He stated that he removed old ceilings, primarily if they were leaking, and installed new ceilings – drywall or tiles, which he indicated that he had to cut, as required. He recalled ripping out sheetrock and plaster ceiling materials. He did not indicate how often he installed drywall ceilings as opposed to ceiling tiles, though he primarily described installing ceiling tiles. There was one passage in his deposition where he described using plaster (joint compound products) in conjunction with doing taping work on ceilings. In this portion of the deposition he also stated, with respect to the "plaster" that in the earlier days he mixed the powder with water and then later, it came pre-mixed; and,

- Flooring: He believed that he used vinyl asbestos tiles (90% of the time) and claimed that he was exposed to asbestos from the breakage of old tiles, when he cut the tiles and cleaned up afterwards. He also handled sheet goods and believed that they contained asbestos. He recalled using them in the kitchen and laundry rooms and indicated that he had to cut them after unrolling them to fit.

Mr. Helfand performed some renovation work in his personal residences and claimed that he was exposed to asbestos during such work. He resided at his three-family homes located at 9802 Foster Avenue, Brooklyn from 1935 to 1949/50 and claimed exposure to asbestos when he handled insulation around a boiler in the basement. He stated that occasionally, the boiler was modified and cleaned up.

From 1949 or 50 until 1958, he lived at his parents' home at 634 Schenectady Avenue, Brooklyn which was a one-family home that was being converted to a two-family home. The projects in this home included completing the basement, building an apartment, walls, ceilings, floors, electric and bathroom. The basement dimension was approximately 15 feet by 35 feet. The plaintiff indicated that he worked with his father and brother after school hours and on the weekends during the summer, for about 6 months performing the remodeling work. He claimed that he was exposed to asbestos when he handled the flooring, sheetrock, spackling and finished the basement. He stated that he normally installed the sheetrock, taped it and spackled and smoothed in about six steps. He implied that in his later work the finishing could be done in about three steps.

He resided at 1151 East 82nd St, Brooklyn, a single-family home from 1963 to about 1996. He performed the renovation tasks at this residence, at night and on weekends and was helped by his father and brother. He finished the basement, added another bathroom, re-insulated the back wall, put in a kitchen and installed a fence. The basement work was performed in about 1965 and he claimed that he was exposed to asbestos when he installed vinyl asbestos flooring, when he cut the drop ceiling tiles for installation and when he handled sheetrock cement or spackle. He recalled the dimension of the basement to be 15 feet by 20 feet. A bathroom was added in the basement also in about 1965, after the basement was completed. This project took about a week and he was not sure if he was exposed to asbestos during this work.

He also re-insulated the back wall of the house in about the mid 1970s. He believed that he was exposed to asbestos when he used sheetrock and spackling compound in this project. Mr. Helfand installed an outdoor fence and was not aware of asbestos exposure during this project. In about 1981, he built a kitchen where he ripped out all the plumbing and installed the flooring. He believed that the flooring contained asbestos. Other claimed asbestos-containing products that he personally handled in this project, included sheetrock and spackling compound. Throughout his personal residence renovation, the only brand of spackling compound that he recalled was US Gypsum. He did not use a mask or respirator during his personal home renovation work.

He smoked about 1 pack of cigarettes a day from the 1950s to the mid 1970s. He smoked unfiltered cigarettes when he started smoking and later smoked filtered cigarettes. His medical conditions included high blood pressure, hiatus hernia, rheumatic fever (approximately 1944), child asthma, mobility issues with his left arm, pneumonia (mid 1980s and 2007), cancer of the neck-liposarcoma (approximately 1985) and bladder cancer (early 1990s). He underwent surgeries for liposarcoma, bladder cancer, gall bladder (1997), "rotor rooter" of an artery (1997), cataracts in both eyes (approximately 2001/2002 and 2005/2006) and pinched nerve/disc problem (2006). Fluid was drained from his lungs and biopsies were performed and he was diagnosed with mesothelioma in about Oct 2006.

EXPERT OPINION

I have concluded with a reasonable degree of scientific certainty that Mr. Harvey Helfand was not exposed to harmful levels of asbestos from using joint compound allegedly supplied by Kaiser Gypsum. Mr. Helfand's cumulative exposure dose to the joint compound, allegedly supplied by Kaiser Gypsum, from some limited use during various renovation projects would have been less than the dose needed to increase the risk of getting asbestos-related disease. Epidemiological studies[1,2] have shown that auto mechanics, who would have been exposed to significantly higher doses of asbestos are not at increased risk of getting asbestos-related disease. The dose that Mr. Helfand could potentially have experienced from the renovation projects where allegedly using Kaiser Gypsum joint compound, would be significantly less than the dose for the auto mechanics. His low exposure dose to asbestos from Kaiser Gypsum joint compound is due to the fact that if he ever used the product it would have been for a very limited duration. Additionally, the type of asbestos and length of fibers associated with drywall joint compound are not associated with an excess risk of the development of mesothelioma.

This opinion is based on my education and experience in the field of industrial hygiene. My experience includes evaluating the use of asbestos in many industrial operations and the presence of asbestos-containing materials in hundreds of buildings and operations. I have personally collected several thousand asbestos bulk and air samples in a variety of situations. I have specifically collected air samples while various ACMs were being handled, used, and removed, which included: drywall joint compound, transite, floor tile, electrical components and other non-friable and encapsulated materials, as well as thermal system insulation and surfacing materials.

This opinion is also based on personal knowledge and knowledge from published scientific studies about exposures for drywall tapers, the length of fibers in asbestos-containing joint compounds and the types of asbestos typically used in asbestos-containing joint compounds, which is soluble in the lungs and is removed from the lungs by physiologic actions, and thus, has a lower propensity for causing pulmonary disease than other forms of asbestos.

Based on my experience in the industrial hygiene field and knowledge of the literature regarding the health hazards of asbestos, I am familiar with the findings and conclusions of researchers in the field of occupational health regarding asbestos health hazards and of the practices of occupational health professionals with respect to safeguarding workers from harmful asbestos products. The following discussion sets forth the basis for my opinion.

Asbestos Emissions from the Use of Asbestos-Containing Drywall Joint Compound

Drywall joint compound is used in the process of installing drywall during both new construction and renovation. The joint compound is typically used to seal seams between sheets of drywall and to smooth out imperfections within visible portions of the drywall sheets. The joint compound is typically applied after sheets of drywall have been cut to the correct size and shape, and installed to the wall and ceiling frames. Next, a drywall tape is applied to seams along with drywall compound. After the compound is applied, excess material is removed with a scrapper or a trowel while the compound is still pliable and has a putty-like consistency, leaving a smooth drywall surface at the joints. The skilled installer removes much of the joint compound while it is still pliable to reduce the amount of sanding required to smooth the joints.

Following the smoothing operation, the compound is allowed to dry. The joint compound is then typically sanded to ensure a smooth appearance. The installation of drywall logically takes place for a limited duration of the construction project, beginning after the completion of framing, electrical wiring and rough plumbing and when the building is significantly isolated from the outdoor environment; however, the drywall installation is completed prior to such activities as painting and the installation of finished carpentry products such as base boards or door frames.

The following discussion provides data on asbestos emissions associated with the disturbance of drywall joint compound. There are studies that have measured asbestos concentrations when drywall tapers were using joint compound. The concentrations during sanding operations were found to be the highest of the typical activities of drywall tapers, however when considered in context with the other typical activities, Time Weighted Average (TWA) (full-shift) exposures were likely to be in the range of two fibers per cubic centimeter of air (f/cc) when using pre-mixed materials, as might come in a plastic bucket, when analyzed by Phase Contrast Microscopy (PCM). Later work, published by the federal Occupational Safety and Health Administration, suggests that the upper bound average for drywall work in home repair and remodeling activities is closer to 0.85 f/cc.[5]

The TWA for drywallers who are using joint compound to smooth seams is based on the

amount of time they are actually sanding dried joint compound versus other activities. The TWA for the other activities will generally be well below exposures associated with actual sanding activity. Additionally, PCM is an optical microscopic method that evaluates the presence of fibers and does not identify asbestos specifically. According to the Fischbein paper the drywall joint compound also contains other materials as "major constituents," such as talc and mica which may also appear fibrous using optical microscopy methods. The potential error in the counting of non-asbestos fibers in the analytical procedure suggests that exposure estimates in these articles are likely over-estimates of actual asbestos concentrations.

Mr. Helfand seemingly only mentions Kaiser Gypsum with reference to ceiling work, and he implies to have mostly installed ceiling tiles which would not require the use of Kaiser Gypsum or any drywall joint compound. Again, he specifically refers to using US Gypsum products during personal renovation projects, and even if he sanded this product during ceiling tile installation, it would have been for a much more limited timeframe than the drywallers in the cited studies.

Asbestos Type and Fiber Length in Asbestos-Containing Drywall Joint Compound

The type of asbestos used in the manufacturing of typical drywall joint compound, during periods when it was used at all, would normally have been chrysotile asbestos. Chrysotile asbestos was by far the most commonly used asbestos in the United States and would have been the most available and most economical choice if asbestos was a component of the drywall joint compound. Additionally, since drywall joint compound did not specifically need increased thermal or insulative capability, there would have been no logical need to use more rare and expensive amphibole forms of asbestos. A 1975 article in Science[6] also implies that chrysotile asbestos was the only commercial form of asbestos found in industrial drywall taping compounds. A study conducted on Kaiser Gypsum Joint Compound by Hatfield and Longo also reported that chrysotile was the only commercial form of asbestos found.[7]

Epidemiologic studies have been published that suggest that exposure to chrysotile asbestos has no association with increasing the risk of getting mesothelioma or has a significantly lower risk of developing mesothelioma than exposures to amphiboles.[9]

Additionally the Science article suggests that the majority of fibers present in drywall joint compound would have been shorter than five microns (or micrometers) in length. It also states that the longest fiber detected in sampling was 8.0 microns. The Hatfield and Longo paper also reported that the vast majority of fibers in Kaiser Gypsum joint compound were less than five microns in length. A review of the literature supports the conclusion that exposure to asbestos fibers less than five microns in length is not associated with asbestos related disease.[10,11]

CONCLUSIONS

In conclusion, Mr. Harvey Helfand was not exposed to levels of asbestos from possibly working with drywall joint compound, allegedly supplied by Kaiser Gypsum, during renovation

projects, which would cause or exacerbate any asbestos-related disease that Mr. Helfand may have had. Kaiser Gypsum joint compound was either not available or in very short supply during periods of the alleged exposure. However, even if Kaiser Gypsum products were used, he could not have been exposed to harmful levels of asbestos there from, because:

- Kaiser Gypsum joint compound was not available on the East coast of the US until late 1968, and distribution in 1969 and 1970 was limited due to production problems. Kaiser Gypsum phased asbestos out of its joint compound products completely by 1975.

- His potential exposure time to the sanding of joint compound would have been for a limited period of time. He primarily refers to US Gypsum joint compound products in his work. Additionally, he doesn't specify the frequency or duration of home renovation work, other than on his residences, and he only specifically refers to Kaiser Gypsum products while discussing ceiling work, and he otherwise seems to imply that most of his ceiling work consisted of installing ceiling tiles;

- Drywall joint compounds typically contain Chrysotile asbestos, when asbestos is present at all. Several studies have demonstrated that Chrysotile asbestos has little or no potential to cause mesothelioma at the exposure doses described in this case;

- Drywall joint compounds only contain short asbestos fibers and the nature of sanding the joint compound would also tend to further reduce the size of the fibers that could be emitted into the air; and,

- Limited exposure duration to the Kaiser Gypsum drywall joint compound would likely have a total exposure dose well below the dose associated with asbestos-related disease.

The amount of asbestos fibers and asbestos dose that Mr. Helfand could potentially have been exposed to from Kaiser Gypsum products is insignificant and would not add to his risk of contracting mesothelioma.

This evaluation is based on the information provided to date. If additional information is provided, I reserve the right to modify the report. Please do not hesitate to contact me at (301) 519-6880, if you have any questions or if I can be of further assistance.

Sincerely,

Dennis C. Ertel, Jr., CIH, REM
Senior Industrial Hygienist

DCE:pn

REFERENCE LIST

[1] Rushton, L., M.R. Alderson and C.R. Nagarajah. *Epidemiological Survey of maintenance workers in London Transport Executive Bus Garages and Chiswick Works*, British Journal of Industrial Medicine, 40, 340-345, 1983.

[2] Marcus, Kjell, Bengt G. Jarvholm and Sven Larsson. *Asbestos-Associated Lung Effects In Car Mechanics*, Scand J Work Environ Health, 13, 252-254, 1987.

[3] Verma, Dave K. et al., *Occupational Exposure to Asbestos in the Drywall Taping Process*, American Industrial Hygiene Association Journal, 41, 264-269, 1980.

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[5] Price, W and A. Ware, *Mesothelioma: Risk Apportionment Among Asbestos Exposure Sources*, Risk Analysis, Vol. 25, No. 4, 2005.

[6] Rohl, AN, AM Langer, IJ Selikof and WJ Nicholson, *Exposure to Asbestos in the Use of Consumer Spackling, Patching and Taping Compounds*, Science, Vol. 189, 551-559, 15 August 1975.

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[11] Platek, S.F., D.H. Groth, C.E. Ulrich, L.E. Stettler, M.S. Finnell, and M. Stoll. *Chronic Inhalation of Short Asbestos Fibers*, Fundamental and Applied Toxicology 5, 327-340, 1985.

CURRICULUM VITAE
DENNIS C. ERTEL, JR., C.I.H., R.E.M.

Work History:

2000-Present Director, Industrial Hygiene and Toxicology Division
Sandler Occupational Medicine Associates, Inc. (SOMA)
Gaithersburg, MD

- Manages SOMA industrial hygiene and toxicology projects including indoor air quality evaluations, lead and asbestos exposure and remediation projects, chemical risk assessments and recommended controls, worker right-to-know, hazardous waste evaluation and remediation projects, and respirator programs including selection, fit testing, and program design; in-plant evaluations to identify, quantify and control health hazards; and provide expert witness services. Expert witness services include product liability, workers' compensation, and exposure modeling.
- Provides occupational health training to governmental agencies, private companies and professional associations. Prepares Material Safety Data Sheets (MSDSs) and warning labels for products. Periodically assists governmental agencies in support of their occupational health programs and research programs. Identifies exposure profiles by reconstruction of historical records and other data evaluation for dose reconstruction or epidemiology studies.
- Manages budgets, directs staff (both full-time professional and administrative staff as well as part-time consultants to the company), and develops marketing strategies for industrial hygiene operations. Oversees SOMA's exposure testing operations and instrument laboratory.
- Conducts exposure modeling and simulated exposure experiments to evaluate exposures to many potential toxicants and exposure scenarios include evaluation of chemical applications and disturbance of asbestos-containing materials.
- Manages large multi-site exposure evaluation and modeling project for aggregates mining industry. Oversees implementation of report recommendations and response actions.
- Conducting a large multi-site noise exposure evaluation for residential construction building trades.
- Course Instructor within the George Washington University's School of Public Health as needed. Served as a co-instructor for Introduction to Health and Safety in Museums. Serves as a Small Group Instructor for Environmental and Occupational Health.

1993 – 2000 Project Manager / Senior Scientist
Law Engineering and Environmental Services, Inc.
Washington D.C. Office (Sterling, VA)

- Manager of Environmental Health and Safety Group, supervising a staff of ten professionals; and providing environmental consulting services to government and commercial clients.
- Managed projects and provided technical expertise in broad range of industrial hygiene to include asbestos, lead, indoor air quality, noise, personal protective equipment, health and safety plans, as well as environmental concerns for employee protection during remediation and renovation projects. Includes:
  - Collection of several thousand bulk and air samples for asbestos analysis.
  - Collection of several hundred bulk, paint, soil and air samples for lead analysis.
  - Evaluation of residual asbestos content in brake manufacturing facilities.
  - Sampling of outdoor air in the vicinity of naturally occurring asbestos deposits during disturbance.
  - Sampling during removal of many asbestos-containing compounds to include floor tile, roofing materials, drywall joint compound, transite materials and many friable asbestos-containing materials.
- Managed and oversaw large multi-site survey projects for Phase I Environmental Site Assessments, Asbestos-Containing Material Surveys and Lead-Based Paint Surveys.
- Managed and served as primary client contact and technical expert on a long-term, multi-site, multi-task contract for environmental safety and health services for the Smithsonian Institution.
- Provided training services for internal and external customers, including asbestos awareness, respiratory protection, hazard communications and hazardous waste operations.
- Oversaw and managed an asbestos analysis laboratory.
- Safety Officer for Branch Office of 70 employees – managing regulatory required programs and conducting training.

1991 – 1993 Environmental Operations Officer
Nuremberg Military Community, US Army
Germany

- Recommended, planned and budgeted projects, working with consultants to execute projects, and managed public affairs for the Army Environmental Office.
- Planned, budgeted and conducted environmental compliance activities for military bases.
- Served as the asbestos coordinator for all facilities within the community.
- Formulated and implemented policies and contracts for separation and disposal of solid and hazardous wastes, in all army communities in the

German state of Bavaria.

- Conducted recycling and environmental awareness campaign for an audience of 52,000 – which included preparing "how-to" manuals, newspaper articles, press releases, townhall meetings, and a recycling videotape.

1989 - 1991 Engineer Platoon Leader
2nd Armored Cavalry Regiment, US Army
Germany

- Supervised, trained, developed and provided welfare for 32 combat engineer soldiers – specializing in engineering construction and explosive demolitions.
- Trained and led unit through a five month deployment to the Middle East for Operations Desert Shield and Desert Storm.
- Served as Health and Safety Officer for Company of 200 soldiers.

Education:

- **George Washington University,** Washington DC
  Masters of Public Health (MPH) program, **(Environmental and Occupational Health track),** expected completion Spring 2006. All required coursework complete. Final project underway. Coursework Includes: Toxicology, Epidemiology, Biostatistics, Biological Monitoring, Risk Assessment, Risk Communications, Environmental and Occupational Health Policy and public health leadership.

- **George Mason University,** Fairfax, Virginia
  Graduate (Masters) Courses in Environmental Science and Policy Program (17 hours)

- **University of Virginia,** Charlottesville, Virginia
  Bachelor of Arts, Environmental Science (Minor in Archaeology), May 1989

Professional Certification:

- **Certified Industrial Hygienist (CIH),** American Board of Industrial Hygiene (ABIH), 2000
- **Registered Environmental Manager (REM),** National Registry of Environmental Professionals (NREP), 1999

Licenses:

- Virginia Asbestos Inspector and Management Planner, 1993 to 2004
- Virginia Asbestos Project Designer, 1994 to 2004
- Virginia Lead Inspector/Risk Assessor, 1999 to Present

Presentations and Publications

Presentations

- June 2004. Safety in the Decontamination of Cultural Property: Mold, Presentation on Risk Assessment and Project Management, Annual Meeting for the American Institute for Conservation of Historic and Artistic Works, Portland, Oregon.
- Fall 2003. Small Group Instructor for Public Health 221: Environmental and Occupational Health (Master's Level), George Washington University, Washington, DC.
- May 2003. Exposure Monitoring and Air Sampling, Health and Safety Lecture for the American Institute for Conservation of Historic and Artistic Works, Washington, DC.
- Summer 2002 – Co-Instructor for Public Health 290, Introduction to Health and Safety in Museums, (Master's Level), George Washington University, Washington, DC.
- June 2002. Safety in the Decontamination of Cultural Property, Presentation on Risk Assessment, Sampling Strategies and Project Completion, Annual Meeting for the American Institute for Conservation of Historic and Artistic Works, Miami, Florida.
- March 2002. Industrial Hygiene Considerations for Laboratory Safety, part of a Laboratory Safety Seminar presented by the Maryland Archaeological Conservation Laboratory, Saint Leonard, Maryland.
- February 1996. Hazardous Building Materials, Presentation as part of Reengineering America's Architecture for the American Institute of Architecture, Washington, DC.

Publications

- September 2004, *Mold: Evaluation of Risk and Decontamination*, AIC News, Vol. 29, No. 5.
- March 2004. *Health and Safety News: Is Your Old Dust Mask the Respirator You Thought It Was?*, AIC News, Vol. 29, No. 2.
- November 2003. Air Monitoring Guide, AIC News, Vol. 28, No. 6.
- March 2003. *Health and Safety News: A Summary of Two OSHA Inspections in Museums*, AIC News, Vol. 28, No. 2.
- September 2002. *Decontamination in Conservation*, AIC News, Vol. 27, No. 5.

Professional Training:

- Reconstructing Exposure and Dose: Utility for the Practicing Industrial Hygienist, May 2004.
- Environmental Mold: Legal, Insurance, Legislative and Regulatory Impacts, February 2004
- Noise Control Engineering: Principals and Application, September 2003.
- Applied Ergonomics, AIHA Professional Development Course, April 2000
- IAQ Diagnostics: Hands-on Assessment of Building Ventilation and Pollutant Transport, February 1999
- Building Tune-up for Energy Efficiency and Improved Indoor Air Quality, May

1997

- Investigating and Mitigating Microbiological Contamination in Buildings, December 1997
- HVAC and Indoor Air Quality for Non-Engineers, November 1995
- 40 Hour Hazardous Waste Operations and Emergency Response (Initial and Refresher) since 1995
- Environmental Protection Agency approved AHERA Asbestos Inspector Course (Initial and Refresher) since 1993
- Environmental Protection Agency approved AHERA Asbestos Management Planner Course (Initial and Refresher) since 1993
- Environmental Protection Agency approved AHERA Asbestos Designer Course (Initial and Refresher) since 1995
- Environmental Protection Agency approved AHERA Asbestos Supervisor Course (Initial and Refresher) from 1993 to 2000.
- Environmental Protection Agency approved AHERA Asbestos Project Monitor Course (Initial and Refresher) from 1994 to 2000.
- Lead Inspector Technician/Risk Assessor Course (Initial and Refresher) since 1993

Associations:

- American Industrial Hygiene Association, Member 1995 - Present
- Potomac Local Section, AIHA, Member 1995 – Present
  - Section Director, June 2005 - Present
- Academy of Industrial Hygiene, Diplomate Member 2000 - Present
- International Society of Indoor Air Quality and Climate (ISIAQ) Member 1998 - Present
- The American Institute for Conservation of Historic & Artistic Works (AIC), Member 2001 – Present.
  Member of Health and Safety Committee: 2001 – present
  Member of Subcommittee on Curriculum/Special Publication Editorial Subcommittee: 2003 - present